8014
8015

CRUISE REPORT, SIMS88-1 and -2

Vessel:	R/V Roger R. Simons
Cruise number:	SIMS88-1 and -2
Parent project:	Lake Level and Sedimentation History (LLASH)
Area of operations:	Lake Michigan JD250-257
Cruise dates:	leg 1: Sept. 6-13, 1988
	leg 2: Sept. 14-24, 1988 JD 258 - 268
Chief scientist:	Steve Colman (USGS)
Scientific party:	Dave Foster (USGS)
	Bob Oldale (USGS)
	Jim Clark (Calvin College) leg 1
	Jim Meer (U. Wisconsin, Milwaukee) leg 1
	Larry Poppe (USGS) leg 2
	Peter Popenoe (USGS) leg 2
Technician:	Ken Parolski (USGS)
Navigation Specialist:	Barry Irwin
Ship's captain:	Ron Ingram
Coring contractor:	Alpine Ocean Seismic Surveys, Jim Katsolis, party chief

Purpose of cruise:

Collection of seismic-reflection data in Lake Michigan to define the stratigraphy and sediment character of the deposits below the lake floor. The seismic-reflection data was used to choose final core locations for the second leg of the cruise. These cores will be used to develop a closely dated record of sedimentation and paleoenvironmental conditions in the lake. The cores and the seismic-reflection data together will be used to determine the history of lake-level fluctuations over the last several thousand years.

Navigation:

Positions were determined from Loran-C time delays using the Branch's IBM-PC system and Megapulse receiver, on lines 8970-X and 8970-Y. Coordinates were recorded on disc at one minute intervals and printed at ten minute intervals. Coordinates were also recorded by hand on the seismic-reflection records.

Scientific equipment employed:

Seismic reflection (3.5 kHz)
- ORE transducer
- ORE 140 transceiver
- EPC 3200 graphic recorder

Seismic reflection (boomer)
- Huntec DTS fish
- Benthos winch
- Huntec acoustic reflectivity unit
- ORE Geopulse 5210A amplifier/filter
- Benthos AQ-4 10-element hydrophone streamer
- Datum 9300 time-code generator
- BNC 7010 digital delay generator
- EPC 312 record annotator
- EPC 4800 graphic recorder
- Hewlett-Packard 3968A 8-track analog tape recorder

Navigation
- Megapulse Accufix 500 Loran-C receiver
- IBM-PC control program (Irwin) and printer/disk storage

Equipment performance:

The ORE 3.5 kHz and Huntec Sea Otter seismic systems performed extremely well, as did the Loran navigation system. The Huntec deep tow seismic system failed repeatedly shortly after each deployment due to water leakage into the fish electronics, and was not able to collect any significant amount of data. Coring equipment provided by Alpine performed satisfactorily.

Cruise Summary:

The cruise generally successful, although plagued with mobilization problems and some weather difficulties. Two storms, one of which was the remains of Hurricane Gilbert, force our return to port. Mobilization for the seismic leg (leg 1) took 3 days instead of the allotted 2, and the coring mobilization (leg 2) took 6 days instead of the allotted 2. Nevertheless, a total of 950 km of seismic-reflection profiles were collected, and 13 cores (6 piston and 7 vibracores) were obtained. Analysis of the seismic-reflection profiles and cores should provide sufficient data to begin to decipher the history of changes in lake level in Lake Michigan over the last several thousand years and the lake's response to those changes.

Attachment: track chart and core locations

cc: B. Butman
H. Knebel
M. Bothner
N. Soderberg ✓
T. Aldrich
T. O'Brien
E. Winget
D. Folger

```
#-b SIMS 88 Start and End of Lines
#-b
#-b SIMS 88-1, LINE 1, 0757-1529
.......(SOL 1) 253:07:57        43.005058       -87.822800
#-b SIMS 88-1, LINE 2, 1529-2329
.......(EOL 1 - SOL 2)  253:15:29       42.828060       -87.218117
#-b SIMS 88-1, LINE 3, 2329-0751
.......(EOL 2 - SOL 3)  253:23:29       42.392784       -87.792770
#-b SIMS 88-1, LINE 4, 0751-1550
.......(EOL 3 - SOL 4)  254:07:51       42.590015       -86.947929
#-b SIMS 88-1, LINE 5, 1550-1918
.......(EOL 4 - SOL 5)  254:15:50       42.256863       -86.397179
#-b SIMS 88-1, LINE 6, 1918-2315
.......(EOL 5 - SOL 6)  254:19:18       42.187241       -86.730301
#-b SIMS 88-1, LINE 7, 2315-0518
.......(EOL 6 - SOL 7)  254:23:15       42.495861       -86.654747
#-b SIMS 88-1, LINE 8, 0518-1129
.......(EOL 7 - SOL 8)  255:05:18       42.330406       -87.115669
#-b SIMS 88-1, LINE 9, 1129-1857
.......(EOL 8 - SOL 9)  255:11:29       42.802757       -86.863815
#-b SIMS 88-1, LINE 10, 1857-0320
.......(EOL 9 - SOL 10) 255:18:57       43.353615       -87.162727
#-b SIMS 88-1, LINE 11, 0320-1318
.......(EOL 10 - SOL 11) 256:03:27:30   43.857189       -86.483124
#-b SIMS 88-1, LINE 12, 1318-2055
.......(EOL 11 - SOL 12) 256:13:18      44.148762       -87.523285
#-b SIMS 88-1, LINE 13, 2055-0100
.......(EOL 12 - SOL 13) 256:20:55      43.614388       -87.337387
#-b SIMS 88-1, LINE 14, 0100-0525
.......(EOL 13 - SOL 14) 257:01:00      43.483429       -87.781921
.......(EOL 14) 257:05:25       43.384811       -87.298424
#-b END SIMS 88-1
#-b SIMS 88-2, LINE 15, 3.5 kHz, 0235-0749
.......(SOL 15) 263:02:35       42.800781       -86.862350
#-b SIMS 88-2, LINE 16, 3.5 kHz, 0749-0902
.......(EOL 15 - SOL 16) 263:07:49      43.022827       -86.245331
.......(EOL 16) 263:09:02       43.071217       -86.388847
#-b END OF LINE 16
#-b SIMS 88-2, LINE 17, 3.5 kHz, 0330-1243
.......(SOL 17) 266:03:30       42.396515       -87.523201
.......(EOL 17) 266:12:43       41.739998       -87.379745
#-b END LINE 17
```

No Huntec for Lines 15, 16, 17 = (88-2) 3.5 only coring